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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,001	01/19/2006	Laurent Labrousse	284320US0PCT	5146

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EXAMINER	
MCDONALD, RODNEY GLENN	
ART UNIT	**PAPER NUMBER**
1724	

NOTIFICATION DATE	DELIVERY MODE
11/30/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/565,001	LABROUSSE ET AL.	
	Examiner	Art Unit	
	Rodney G. McDonald	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finley (U.S. PG PUB 2002/0045073) in view of Honjo et al. (EP 1 182 174 A1) and Greenberg et al. (U.S. Pat. 7,049,002).

Regarding claim 21, Finley teach a method of preparing a material exhibiting photocatalytic properties comprising a coating at least partially crystallized titanium dioxide. (Paragraph 0027) Finley teach depositing titanium dioxide in amorphous form

on at least a first face of a glass or glass ceramic substrate by cathode sputtering. (Paragraph 0003, 0028, 0043) Finley teach providing beforehand one or more functional multilayers. (Paragraphs 0031-0036) Finley teach depositing on at least a second face of the substrate one or more functional solar control or low emissive multilayers, one or more solar control or low emissive functional layers, or a combination thereof by sputtering. (Paragraph 0031, 0032, 0035, 0036) Finley suggests subjecting the substrate to one or more post-coating heating operations such as annealing or tempering. The one or more heating steps read on Applicant's two heating steps with one of the steps being a crystallization step. (Paragraph 0039) Finley suggests heating the substrate to a temperature of greater than 630 degrees C to promote crystallization. (Paragraph 0038, Paragraph 0045, Table 1, Table IV (Example 56 636 degrees C), Table V)

The differences between Finley and the present claims is that the temperature of the heating step is not discussed (Claim 21), the heating step further including bending is not discussed (Claim 22) and the first face of a glass or glass-ceramic substrate comprising a layer of silicon dioxide and wherein the titanium dioxide is deposited directly on the layer of silicon dioxide is not discussed (Claim 21).

Regarding claims 21, 22, Finley already suggests one or more post coating heating operations. One if not both promote crystallization. (See Finley discussed above) Honjo et al. teach that the temperature for a heating step that can include bending and/or tempering includes a temperature from 560 to 700 degrees C. (Honjo et al. Paragraph 0013)

The motivation for utilizing the features of Honjo et al. is that it allows for bending the substrate. (See Paragraph 0013)

Regarding claim 21, Greenberg et al. teach suggest that a layer of silicon dioxide can be on the glass substrate and wherein the titanium dioxide is deposited directly on the layer of silicon dioxide. The layer of silicon dioxide can be amorphous or crystalline. (Column 8 lines 36-67; Column 9 lines 1-23; Column 9 lines 56-67; Column 10 lines 1-23; Claim 46)

The motivation for utilizing the features of Greenberg et al. is that it allows for preventing sodium ions from entering the coating during heating. (Column 9 lines 8-23)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Finley et al. by utilizing the features of Hondo et al. and Greenberg et al. because it allows for forming a bent substrate and for preventing sodium ions from entering the coating during heating.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Finley et al. in view of Hondo et al. and Greenberg et al. as applied to claims 21 and 22 above, and further in view of Krisko et al. (U.S. Pat. 6,964,731).

The difference not yet discussed is the deposition on the at least first and second faces being carried out in line simultaneously or almost simultaneously along substantially identical directions and in opposite senses is not discussed (Claim 23).

Regarding claim 23, Krisko et al. teach in Fig. 5 sputtering in line to form coatings on both faces of the substrate. (See Fig. 5)

The motivation for utilizing the features of Krisko et al. is that it allows for forming coatings on both sides of the substrate. (Column 12 lines 33-36)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Krisko et al. because it allows for forming coatings on both sides of the substrate.

Response to Arguments

Applicant's arguments filed October 20, 2010 have been fully considered but they are not persuasive.

In response to the argument that Finley teach away from the claimed invention because Finley teach that at higher temperatures one would expect lower anatase formation, it is argued that Finley teach that at temperatures greater than 630 degrees C (i.e. 636 degrees C) that anatase titanium dioxide will be formed. This meets Applicant's limitation of heating at a temperature greater than 630 degrees C in order to form an at least partially crystallized titanium dioxide having an anatase form. (See Finley discussed above)

In response to the argument that one of ordinary skill in the art would not have replaced cubic or orthorhombic zirconium oxide to facilitate anatase formation of titanium dioxide with silicon oxides, it is argued that Greenberg et al. teach depositing titanium dioxide directly on crystallized metal oxides (Greenberg et al. Column 10 line 2) serving as a SIDB layer. The crystallized metal oxides include for example zirconium oxide and silicon oxides (Greenberg et al. Column 10 lines 3-4). Therefore one of ordinary skill in the art would readily envisage replacing the crystallized zirconium oxide

layer of Finley et al. with a crystallized silicon dioxide layer because Greenberg et al. recognize that crystallized metal oxides such as zirconium oxide and silicon oxides are equivalents. Since the crystal structure of the underlying layer effects the formation of a partially crystallized titanium dioxide layer in anatase form selection of any number of crystalline metal oxide films as set forth in Greenberg et al. including zirconium dioxide or silicon oxides would be suitable for forming the partially crystallized titanium dioxide in anatase form. (See Finley et al. and Greenberg et al. discussed)

In response to the argument that one of ordinary skill in the art would not have replaced cubic or orthorhombic zirconium oxide to facilitate anatase formation of titanium dioxide with silicon dioxide because it would render Finley inoperable for its intended use, it is argued as discussed above that use of crystallized silicon dioxide would not render Finley inoperable because the titanium dioxide would be partially crystallized by use of the crystallized silicon dioxide layer. As discussed above Greenberg et al. teach depositing titanium dioxide directly on crystallized metal oxides (Greenberg et al. Column 10 line 2) serving as a SIDB layer. The crystallized metal oxides include for example zirconium oxide and silicon oxides (Greenberg et al. Column 10 lines 3-4). Therefore one of ordinary skill in the art would readily envisage replacing the crystallized zirconium oxide layer of Finley et al. with a crystallized silicon dioxide layer because Greenberg et al. recognize that crystallized metal oxides such as zirconium oxide and silicon oxides are equivalents. Since the crystal structure of the underlying layer effects the formation of a partially crystallized titanium dioxide layer in anatase form selection of any number of crystalline metal oxide films as set forth in

Greenberg et al. including zirconium dioxide or silicon oxides would be suitable for forming the partially crystallized titanium dioxide in anatase form. (See Finley et al. and Greenberg et al. discussed)

In response to the argument that Greenberg does not teach the titanium dioxide directly deposited on the silicon dioxide, it is argued that Greenberg et al. teach depositing titanium dioxide directly on crystallized metal oxides (Greenberg et al. Column 10 line 2) serving as a SIDB layer. The crystallized metal oxides include for example zirconium oxide and silicon oxides (Greenberg et al. Column 10 lines 3-4). Therefore one of ordinary skill in the art would readily envisage replacing the crystallized zirconium oxide layer of Finley et al. with a crystallized silicon dioxide layer because Greenberg et al. recognize that crystallized metal oxides such as zirconium oxide and silicon oxides are equivalents. Since the crystal structure of the underlying layer effects the formation of a partially crystallized titanium dioxide layer in anatase form selection of any number of crystalline metal oxide films as set forth in Greenberg et al. including zirconium dioxide or silicon oxides would be suitable for forming the partially crystallized titanium dioxide in anatase form. (See Finley et al. and Greenberg et al. discussed)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M-Th with every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rodney G. McDonald/
Primary Examiner, Art Unit 1724

Rodney G. McDonald
Primary Examiner
Art Unit 1724

RM
November 23, 2010